

TO: ALL REGENCY COMMUNICATIONS PROFESSIONAL SALES & SERVICE CENTERS
ALL REGENCY COMMUNICATIONS PROFESSIONAL SALES REPRESENTATIVES

MODELS AFFECTED: MCU15 SERIES, MCU30 SERIES, MCBU19 SERIES AND
MCBU35 SERIES WITH 704-064 MAIN BOARD

PROBLEMS: TRANSMITTER UNSTABLE
LOW POWER TRANSMITTER
POWER VARIES WITH WIGGLING DC POWER LINE
DIFFICULTY IN BROADBAND TUNING ESPECIALLY AT 500 MHz

SOLUTIONS:

The above list of problems can be broken down to main board problems and power amplifier problems. Production changes have been made on both the Range A (450-476 MHz) and the Range B (470-512 MHz) main boards and the MCU30 Range A power amplifier. The service bulletin details these changes. Range A changes are covered in Sections I through III, Range B in Sections IV and V. Main Board changes should be made first.

NOTE: The current MCU30 and MCBU35 Service Manuals should be kept for future reference because they describe the power amplifier board 504-165 for Rev. A-E.

Section I - Range A 704-064 - Main Board - Models MCU15, 18, 31, 34,
MCBU19A, 35A

Changes for Stability and Power

1. Unsolder from the main board the black ground wire from the DC power connector J1. Attach lugs 2102-0000-005 (in contact with chassis Shakeproof P/N 2104-04-00) and 2102-0000-003 (Shakeproof P/N 2571-06-00) oriented as shown with a 4-40 screw, #4 lockwasher, and #4-40 nut. Solder the black ground wire to the 2102-0000-005 lug. Use the -3 lug to tie wrap the red power, white VSWR, black ground, and blue speaker wires together.

2. Check Q303. If Q303 is marked 696-5 (P/N 4804-3169-605) and the date code is after 008, the part should be replaced with 4804-3169-607.
3. The following main board parts are to be changed.

<u>Reference</u>	<u>Old Value</u>	<u>New Value</u>	<u>New Part Number</u>
R329	330	150 10% ½W comp	4700-0151-042
C344	30pf	36pf 5% 50V NPO	1500-0360-550
C347	12pf	10pf 10% NPO	1500-0100-905

4. Add ground strap L1, P/N 2110-3429-100 where shown on the attached main board overlay. The part is soldered flat on the main board. Spring tension in L1 will make a mechanical ground contact with the chassis. L1 should not extend beyond the chassis.

Section II - Power Amplifier - MCU15,18, MCBU19A,B

Change R110/L110 from 1803-3412-400 to R110 100 ½W 10% comp 4700-0101-042.

Section III - Power Amplifier - MCU31, 34, MCBU35A

Changes for low power

1. If output power is still low, the DC voltage at the feedthru capacitor FTC2 referenced to FTC1 should be measured. If it exceeds -0.75 VDC the VSWR circuit is reducing drive to the power amplifier and R101 should be changed as indicated in the table below. Fine adjustments can be made by carefully bending R107.

<u>Version</u>	<u>Reference</u>	<u>New Value</u>
IN4148	R101	22K 4704-0223-032
MBD 201(See placement)		
cathode short	R101	15K 4704-0153-032
MBD201 cathode long	R101	24K 4701-0243-042
(opposite to that shown)		

2. Remove the following parts (refer to attached PA Placement) C132 (trim-41), C117 (5.6pf), and C123 (10pf).
3. Top side solder trim capacitor P/N 1517-0000-041 such that front leg is in same position on output microstrip line as C117 was.
4. Solder C132 (20pf P/N 1522-0200-006) in the position shown on the PA Placement.
5. Add solder lug 2102-0000-001 (Shakeproof P/N 2522-04-00) under the screw of Q105 away from antenna connector. The screw must be tightened firmly or a "saggy" power amplifier will result. Bend the lug toward L110 and solder to ground.

6. The output stage of the power amplifier must be tuned in the following sequence.
 - a. Preset C133 and C117 for minimum capacitance.
 - b. First Tune C117 for maximum power.
 - c. Then tune C133 for maximum power.
 - d. Fine adjust C117; then C121 for maximum power.

Section IV - Range B - 704-064 - Main Board - Models MCU31H, 34H, MCBU19B, 35B

Changes for Stability and Power

1. Unsolder from the main board the black ground wire from the DC power connector J1. Attach lugs 2102-0000-005 (in contact with chassis Shakeproof P/N 2104-04-00) and 2102-0000-003 (Shakeproof P/N 2571-06-00) oriented as shown with a 4-40 screw, #4 lockwasher, and #4-40 nut. Solder the black ground wire to the 2102-0000-005 lug. Use the -3 lug to tie wrap the red power, white VSWR, black ground, and blue speaker wires together.
2. Check Q303. If Q303 is marked 696-5 (P/N 4804-3169-605) and the date code is after 008, the part should be replaced with 4804-3169-607.
3. Check C343. Make certain it is 1.5pf and not 15pf.
4. The following main board parts are to be changed.

<u>Reference</u>	<u>Old Value</u>	<u>New Value</u>	<u>New Part Number</u>
L322	4½T yellow	3½T red	1803-5125-906
C339	68pf	47pf RD 50V	1524-0470-002
C345	3.3pf	3.9pf	1500-0399-205
C346	.56pf	.47pf	1510-0478-900

5. Two ground straps, L1 and L2 (P/N 2110-3429-100), must be soldered flat on the main board where shown on the attached overlay. Spring tension in both L1 and L2 will make a mechanical ground contact with the chassis. Neither should extend beyond the chassis.

Section V - Range B - Power Amplifier - Models MCU31H, 34H, MCBU35B

Changes for low power

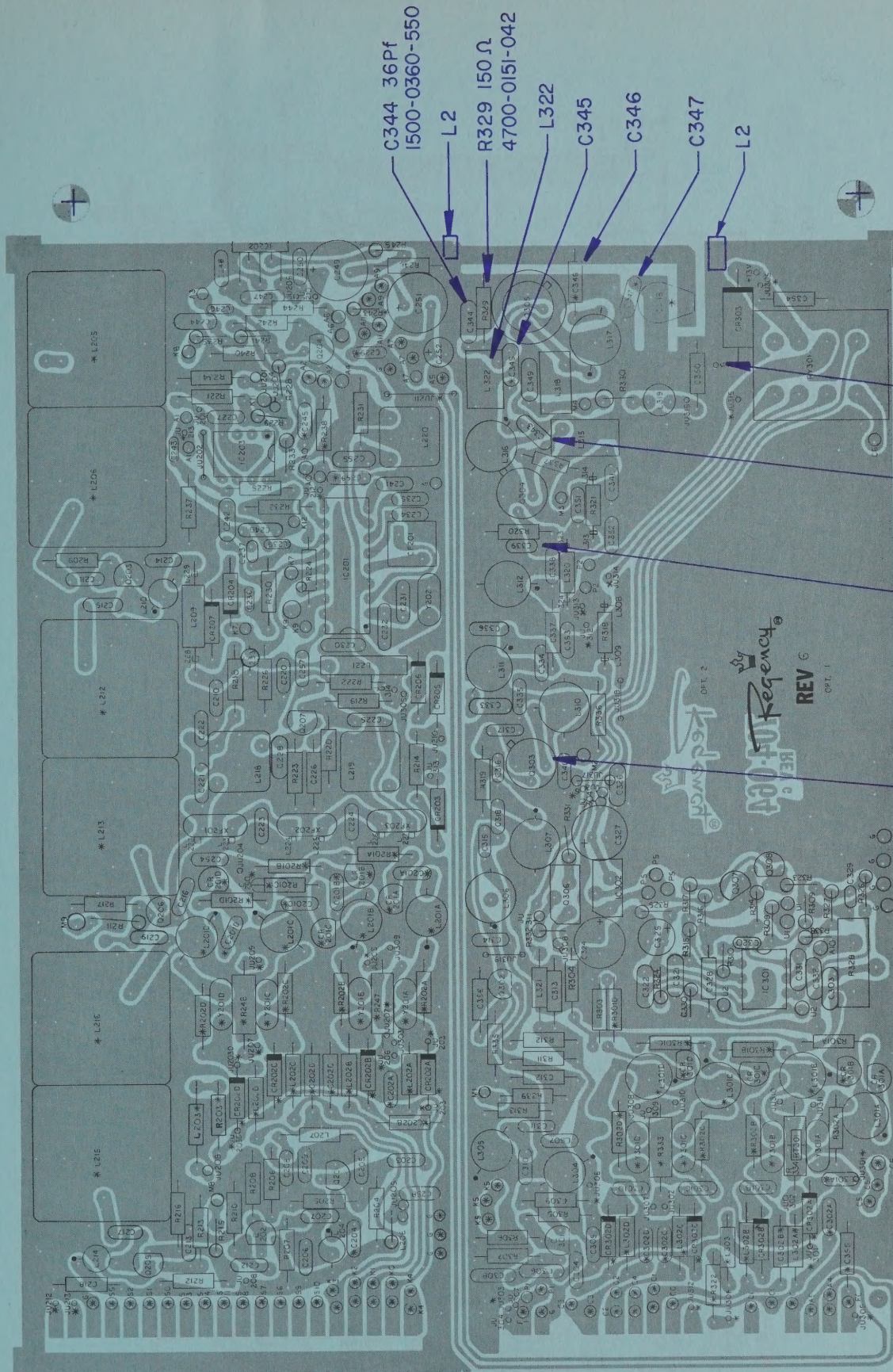
1. If output power is still low, the DC voltage at the feedthru capacitor FTC2 referenced to FTC1 should be measured. If it exceeds -0.75 VDC the VSWR circuit is reducing drive to the power amplifier and R101 should be changed as indicated in the table below. Fine adjustments can be made by carefully bending R107.

<u>Version</u>	<u>Reference</u>	<u>New Value</u>
IN4148	R101	22K 4704-0223-032
MBD 201 (see placement)		
cathode short	R101	15K 4704-0153-032
MBD201 cathode long	R101	24K 4701-0243-042
(opposite to that shown)		

2. Remove the following parts (refer to attached PA Placement) C132 (trim-41), C117 (5.6pf), and C123 (10pf).
3. Top side solder trim capacitor P/N 1517-0000-041 such that the front leg is approximately .2" from the C117 position toward C124 on the microstrip line.
4. Add solder lug 2102-0000-001 (Shakeproof P/N 2522-04-00) under the screw of Q105 away from antenna connector. The screw must be tightened firmly or a "saggy" power amplifier will result. Bend the lug toward L110 and solder to ground.
5. The output stage of the power amplifier must be tuned in the following sequence.
 - a. Preset C121 and C117 for minimum capacitance.
 - b. First tune C117 for maximum power.
 - c. Then tune C121 for maximum power.
 - d. Fine adjust C117; then C121 for maximum power.

TECHNICAL SERVICE DEPARTMENT

REGENCY COMMUNICATIONS, INC.



C344 36Pf
1500-0360-550

L2

R329 150 Ω -550
4700-0151-042

L322

C345

C346

C347

L2

UNLESSER BLACK GROUND WIRE
FROM DC POWER CONNECTOR J1

C343

C339

CHECK Q303

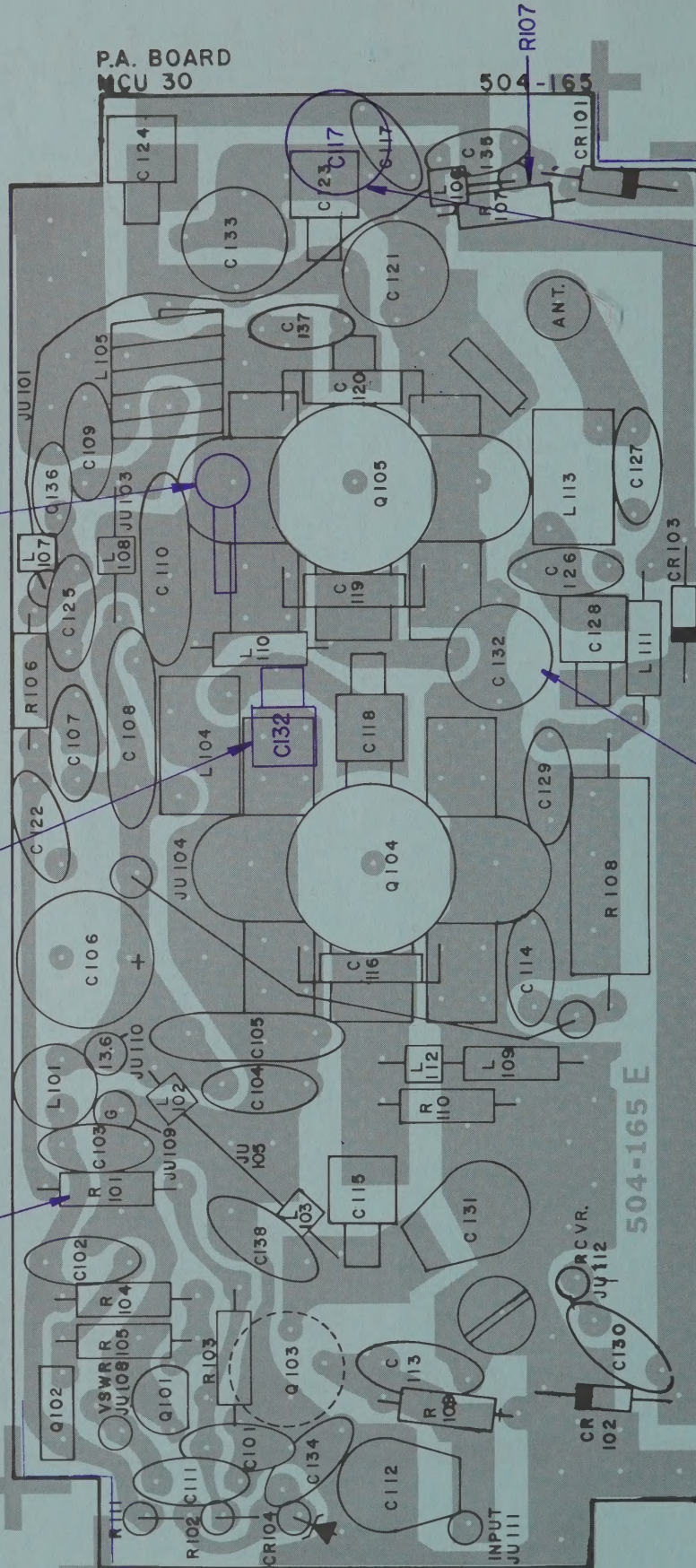
P.A. BOARD
MCU 30

504-165

ADD LUG 2102-0000-001
UNDER SCREW, BEND TOWARD
L110 & SOLDER TO GROUND.

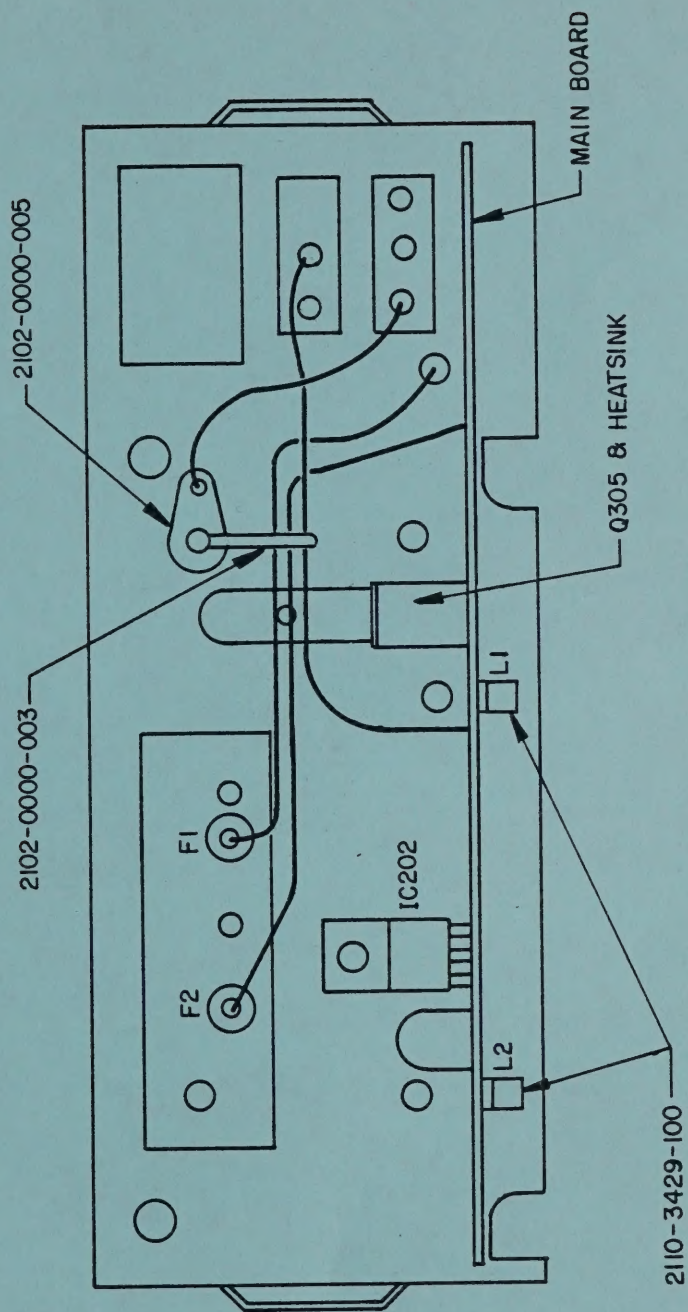
ADD C132-20Pf
1522-0200-006

R101



REMOVE C123 & C117, ADD TRIM
1517-0000-041 IN C117 POSITION.

REMOVE C132



SIDE VIEW
OF L1 & L2

DIAGRAM OF GROUND WIRING CHANGE

UNIVERSITY OF CALIFORNIA, BERKELEY

